

REMARKS

Applicants' invention determines the storage state of an ammonia-adsorbing SCR catalyst. In the embodiment of Claim 1, the method involves applying a measuring pickup to the SCR catalyst and then sensing a physical property of the SCR catalyst from the measuring pickup and determining the storage state on the basis of that physical property.

The present invention improves upon the prior art by detecting the storage state of an SCR catalyst directly in a cost effective manner in order to avoid ammonia (NH₃) leakage.

By being able to directly detect the charging state of the SCR catalyst, it is possible to dispense with exhaust gas sensors and reduce the number of ammonia sensors which have to be fitted into the exhaust pipe. It is also an improvement of the present invention that it is not necessary to employ complex and expensive control methods which do not cover all possibilities with respect to the charging state of the SCR catalyst.

As described in the Background of the Invention at page 6, U.S. Patent No. 5,546,004 describes a sensor for determining the storage state of an SCR catalyst which involves measuring the electrical conductivity of a material which is identical to the SCR catalyst material with regard to its physical properties. The recording takes place within the material at a plurality of points which are at different distances from the surface of the material. The measurement of the variation in conductivity depends on the depth of the material. The purpose of this '004 reference, which is the reference to Schmelz cited in the rejection of claims 1-14, 18 and 21, is to determine characteristics of certain materials which can be used as

materials in the catalyst. This is specifically indicated in the '004 reference at column 4, lines. 32-33.

Therefore, this reference to Schmelz does not "apply a measuring pickup to the SCR catalyst to directly measure the property of the catalyst." Instead it performs tests on materials which are to be used in a catalyst but there is no indication of the status of the catalyst. This reference, as well as the reference to Haas, which serve as the alternative primary references in the rejection of claims 1-14, 18 and 21 under 35 U.S.C. § 103 provide an indication as to how a specific material will react. There is no testing or measuring of this material in its environment after operation of the catalyst has occurred. In the present invention, the physical property of the catalyst changes due to an ammonia storing process, and a measuring pickup is applied directly to the SCR catalyst to determine the storage state based on the physical property. This is the same as determining storage "ability" or characteristic of a material which can be used in the catalyst.

The second embodiment of the present invention, as defined by independent claim 10, once again involves the storage state of the catalyst adapted for use in the exhaust gas stream and involves placing a material identical or similar to the catalyst "in addition" to SCR catalyst. The steps include applying the material to a measuring pickup, sensing a physical property of the material, and determining the storage state on the basis of the physical property. Once again, this material, although it is not the catalyst material, is applied, in addition to the catalyst, and is arranged in an exhaust gas stream. The primary references to Schmelz and Haas are concerned with characteristics of the material of the type which can be used in a catalyst, whereas the present invention involves materials which are either a part of an existing catalyst or which are in addition to the catalyst, and these materials are

tested by the measuring pickup in their environment to test the current state of these materials in their environment and not to test the characteristic of these materials. The secondary references add nothing toward meeting the claim limitations of independent claims 1 and 10 from which the remaining claims depend and contain all the limitations thereof.

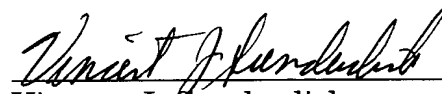
Therefore reconsideration and allowance of this application containing claims 1-14, 18 and 21 is requested in view of the distinguishing features between the claimed invention and the references which features are not shown or disclosed or are made obvious by the references or their combination.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #225/50125MI).

Respectfully submitted,

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